No. 840,680. PATENTED JAN. 8, 1907.

W. E. ARNOLD.

VAULT.

APPLICATION FILED NOV. 27, 1905.

Fig. 1.

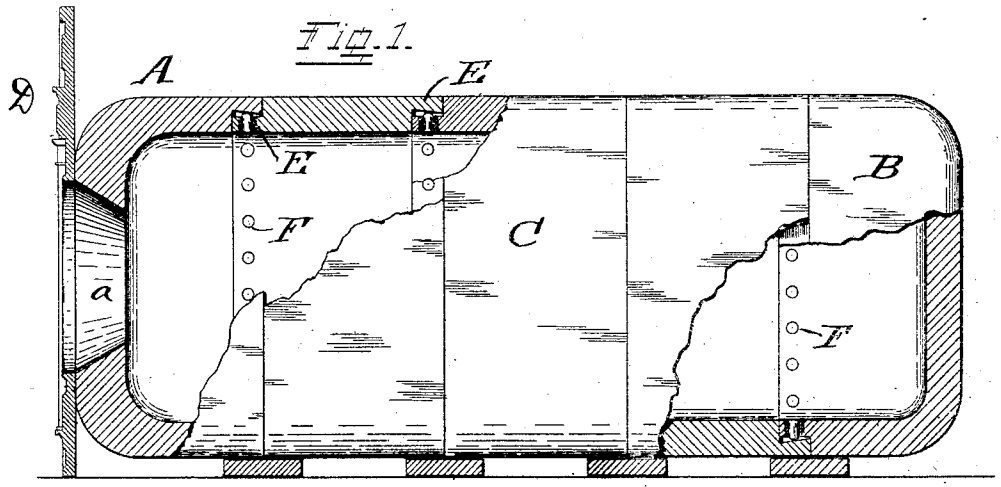


Fig. 2.

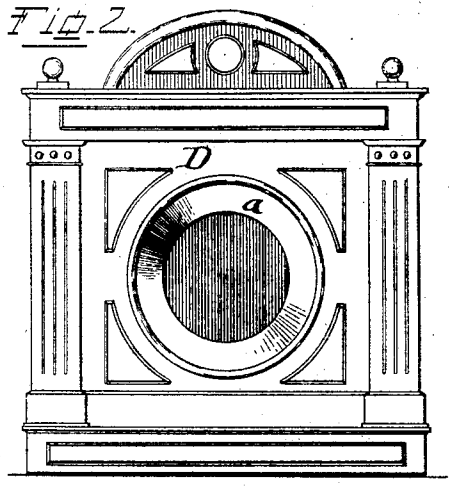


Fig. 3.

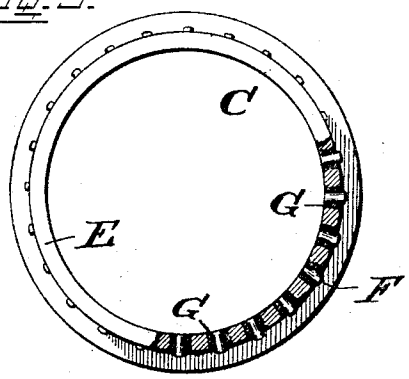


Fig. 4.

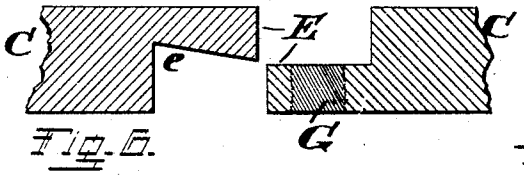


Fig. 5.

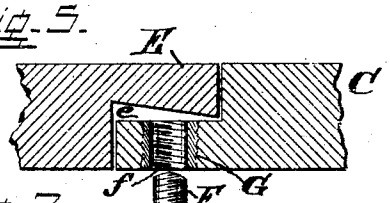


Fig. 6.

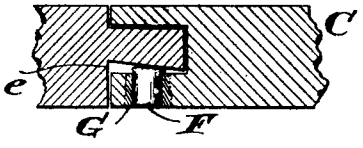
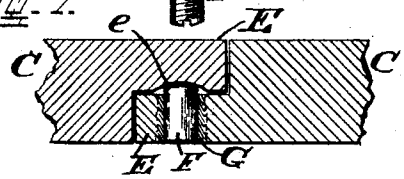


Fig. 7.



Witnesses.

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Inventor

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UNITED STATES PATENT OFFICE.

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VAULT.

No. 840,680. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed November 27, 1905. Serial No. 289,193.

To all whom it may concern:

Be it known that I, WILBER E. ARNOLD, a citizen of the United States, residing at Madisonville, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Vaults; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to new and useful improvements in the construction of vaults, meaning thereby such inclosures which are intended to serve as a safe receptacle for valuables to protect them against fire and burglary. By reason of their considerable size such vaults are made in sections; and my invention consists of certain means, devices, and a particular manner, as shown and described, for connecting such sections to each other securely and firmly to form a vault complete. These means and devices are such as to be particularly adapted when these sections to be connected are of a metal which may not be readily or not at all worked by machine-tools—as, for instance, certain kinds of steel, manganese steel, or other similar alloys. An incidental feature of such a construction is the possibility of enlarging such a vault at any time by the addition of other similar sections whenever subsequent enlargement becomes desirable.

In the following specification, and particularly pointed out in the claim at the end thereof, is found a full description of my invention, together with its parts and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows such a vault in side view with parts broken away and shown in section. Fig. 2 is a front view thereof. Fig. 3 shows an end view of one of the sections with parts broken away. Fig. 4 in an enlarged sectional detail view shows the complementary parts of adjoining sections before they are engaged to form a joint. Fig. 5 shows these same parts engaged and ready for final connection to form the joint. Figs. 6 and 7 in similar views show completed joints each illustrating a modification.

In general the shape of such a vault is that of a cylinder or prism laid on its side and made up of ring or band shaped sections all alike, so as to correspond to the profile of the vault and to fit edgewise against each other.

In the drawings, A is one end section. B is the other, and C represents the intermediate ones. The outer or flat side of section A constitutes also the front of the vault and is therefore provided with an opening *a* to permit access to the interior. This opening might be rectangular or round and in either event is to be provided with a properly-fitting door and means to properly close and lock the same. No door is shown, since this feature forms no part of my invention. This front may be finished off by means of an ornamental front D, as shown in Figs. 1 and 2, which has an opening in it coinciding with opening *a* in the front section A of the vault. Rear section B constitutes also the rear end of the vault and is solidly closed in its flat side. The intermediate sections are so arranged as to diameter or width and as to thickness of wall as to fit between the two end sections and against them and against each other.

In Fig. 1 the vault is shown in shape of a rectangular prism.

The section shown in Fig. 3 is for one of cylindrical shape. Other polygons, shapes, or combinations of shapes may of course be arranged. The means for completing the joints whereby the sections are connected are all provided from the inside, so as to be inaccessible from the outside. In this case a non-machineable metal—like, for instance, manganese steel—being presumed, the manner of forming the connection of the sections to each other is devised accordingly and so that it may be accomplished without requiring any machine-work otherwise than perhaps grinding to obtain a smooth and close fit of the contacting surfaces at the joints. The sections engage each other at the joints where they are to be connected by a projecting portion or rim E at each end of each of the two sections to be connected which fits into a corresponding recess at the opposite end of the section to be engaged by it, rim and recess being complementary to each other, so that the two sections come endwise together closely and smoothly and without a break in the surfaces of the vault. In Fig. 6 the formation of these rims and recesses is modified in the manner shown, the recess on one section assuming the form of a groove.

To hold the two sections endwise to each other after so engaged by one being slipped onto the other, pins F are resorted to, which are inserted from the inside and passing through an opening in the rim E of one section engage the imperforate rim E of the other section, bearing endwise against the inner side of said rim. To cause such engagement to be effective, the outer imperforate rim to be engaged by the pins is undercut or recessed, as shown, at *e*, in Figs. 4, 5, 6, and 7 to permit the end of said pins to pass and project beyond the rim in which they are seated, whereby endwise separation of the engaged sections is prevented. These pins may be in the nature of rivets or in form of a screw, as shown in Fig. 5. The openings for these pins may be cored out or they may be drilled. In this latter case and where the metal is non-machineable soft-metal plugs G are provided in the portions of the rims to be drilled, which are inserted in the molds in which the sections are cast, so that such plugs become integral parts of the completed casting and permit ready drilling at the particular places. Before the sections are so connected the opposite surfaces thereat of which come in contact with each other for engagement are of course perfectly fitted against each other, which in the case of non-machineable metal is done by grinding. In all cases, however, and no matter what particular one of the forms of connection shown is resorted to the outer ends of the connecting-pins are always covered by parts of the two sections to be connected, so as to be entirely inaccessible from the outside and protected from being tampered with.

The capacity of such a vault may be readily increased at any time by opening the joint between two connected sections by removal of the pins thereat from the inside and by the insertion of additional sections. It will also be noted that in this manner of connecting the sections no internal projections are caused which reduce the capacity of the vault.

Having described my invention, I claim as new—

A vault consisting of sections of non-machineable metal which are to be connected endwise, and are endwise fitted to each other for such purpose by being provided each with endwise-projecting rims and with a complementary recess at each rim, the rim of one of the two sections to be connected being complementary to the recess of the other section, pins seated in one of the rims of one of the sections and bearing endwise against the adjacent surface of the complementary rim of the adjoining section, said surface having a continuous recess opposite the ends of said pins and all around to enable such ends to project into this recess at any point and to engage said opposite surface wherever they may be located.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILBER E. ARNOLD.

Witnesses:

C. SPENGEL,

C. MEYER.